STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	SMC/CCX	Process	21 Feb 97	6			
2	SMC/CD	Coord	23 FEB	7			
3	SMC/CV	Coord	Clay 21	8			
4	SMC/CC	Approve	28	9			
5				10			

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Galamba, Dr. Daniel, GS-12	SMC/AXEN	33104	dbg	

SUBJECT	DATE
Waiver Request for DMSP Space Vehicles	18 Feb 97

SUMMARY

1. The SMC Engineering Practices Handbook (formerly the Commander's Policies) states that any program unable to comply with the Handbook should submit a waiver request to SMC/CC even if an item is grandfathered. Four items on DMSP space vehicles don' t comply with the Handbook.

2. In Tab 2, the DMSP SPO requested that the Handbook be waived for four items. Our evaluation of their waiver request is documented in the enclosed point paper at Tab 1. The results of our evaluation is that the waiver request is proper and prudent.

3. RECOMMENDATION. SMC/CC approve the DMSP SPO's request to waive the Handbook for the four specified items by signing above provided the waiver can be revoked if there is any indication of failure.

LESLIE L. BORDELON, SES
Director of Systems Acquisiton

2 Tabs
1. Point Paper on Waiver Request
2. Waiver Request from DMSP SPO

AI# 7854

POC ____ FOG ____

AF FORM 1768, SEP 84 (EF-V3) (PerFORM PRO) PREVIOUS EDITION WILL BE USED.

POINT PAPER
ON
DMSP WAIVER REQUEST

ISSUE

- The SMC Engineering Practices Handbook (formerly the Commander's Policies) states that any program unable to comply with the Handbook should submit a waiver request to SMC/CC even if an item is grandfathered
  -- Four items on DMSP space vehicles don't comply with the Handbook

DISCUSSION

- Moving Mechanical Assembly Spec MIL-A-83 577 not applied on Operational Linescan System (OLS)
  -- Intent of MIL-A-83577 being met, i.e. parts of MIL-A-83577 used in test spec but not all of it
  -- OLS flown on 12 DMSP space vehicles since 1976 (total: 37 on-orbit years) with no failures

- Tin used on fasteners in KG43 and KG46 crypto boxes
  -- Government Furnished Equipment (GFE) items, a SMC wide problem
  -- Implemented option from Aerospace Problem Alert Bulletin #9202 for existing hardware by conformal coating the tin surfaces and any conductive surfaces that could be contacted by growing tin whiskers
  -- Rework has been failure free on two DMSP space vehicles for a total of 53 on-orbit months

- For fuel tanks, MIL-STD 1522 on contract without the REV A requirement of a fracture mechanics analysis
  -- Grandfathered item, full qualification program completed in 1982. REV A added fracture mechanics analysis requirement in 1984
  -- Range safety doesn't require fracture mechanics analysis
  -- Eight DMSP space vehicles have been flying with these fuel tanks without failure

- J-4 sensor electronics not conformably coated
  -- Sensor flown on eight prior DMSP space vehicles (total: 29 on-orbit years) with no failures
  -- Secondary sensor used to measure ionospheric environment. Wouldn't affect primary mission if shorted out

- Above four items all considered low risk

RECOMMENDATION

- SMC/CC approve the waiver request for the above four items for the DMSP space vehicles
  -- Waiver can be revoked if there is any indication of failure

Dr. Galamba /SMC/AXEN/363-3 104/dbg/1 8 Feb 97

Galamba, Daniel B,

From: Eby, Neal V., Lt.
To: Kirschbaum, Alan 1, Col
cc: Homco, David DMSP; Krystkowiak, Eric A., Lt; Galamba, Daniel B,
Subject: Engineering Practices Waiver Requests
Date: Thursday, February 13, 1997 3:26PM

Sir,
The DMSP Program Office has reviewed the SMC Engineering Practices as outlined in the SMC Engineering Practices Handbook (Formerly SMCR 800-' *). Our Mission Readiness Review is scheduled for 28 Feb 97, andwe request four waivers beforehand. These waivers are for partial non-compliance with (1) Moving Mechanical Assemblies, (2) Use of tin on electrical components, (3) Analyses of Pressure Vessels, and (4) Conformal Coatings. The detailed explanations for each of these waivers is included below, as well as reasoning for their minimal risk. None of these issues are new to the DMSP program. In fact some of the designs are present on all our current on orbit satellites and have many years of anomaly free service.

(1) Moving Mechanical Assemblies (Formerly SMCR 800-1 6):
NON COMPLIANCE ITEM: MIL-A-83577 Not applied on Operational Linescan System (OLS) Contract (since '76)
RATIONALE: OLS heritage- flown on 12 spacecraft with no failures in life (a total of 36.9 on orbit years)
Intent of MIL-A-83577 being met (grandfathered)

(2) Use of Tin on Electrical Components (Formerly SMCR 800-27):
NON COMPLIANCE ITEM: Used on fasteners in KGs
RATIONALE: Implemented option for existing hardware by cleaning and conformal coating all fasteners
GFE items - SMC-wide problem with KGs
Rework has failure free on orbit life of 53 months on two DMSP satellites
J. H. Richardson's 14 May 92 Aerospace Problem Alert Bulletin #APAB 9202 which refers to conformal coating tin surfaces and any conductive surfaces that could be contacted by growing whiskers

(3) Analysis of Pressure Vessels (Formerly SMCR 800-29):
NON COMPLIANCE ITEM: Ml L-STD-l 522 on contract without Rev-A, which added fracture mechanics
RATIONALE: Heritage design
Full qual program completed

(4) Conformal Coating (Formerly SMCR 800-32):
NON COMPLIANCE ITEM: J-4 Sensor electronics not conformably coated
RATIONAL: Heritage sensor flown on 8 prior DMSP satellites with no failures (29 on orbit years)
Secondary sensor used for scientific purposes - (Non mission critical)
No risk to primary mission

Please let me know if there are any problems or questions while processing these waivers. I can be reached at 336-4852. Any technical questions can be addressed to the DMSP Aerospace POC, Mr. Dave Homco, at 336-3485. Thank you.

Lt. Neal Eby
Manager, Integration and Test
SMC/CIEA

SMC ENGINEERING PRACTICES
MOVING MECHANICAL ASSEMBLIES
(OLD SMCR 800-16)

REQUIREMENTS:

CONTRACTOR COMPLY WITH MIL-A-83577B

CONTRACTOR NOTIFICATION OF NON-COMPLIANCE

SPO EVALUATE DEVIATIONS AND MAKE RECOMMENDATIONS

S/C	OLS	B/X	IES-2	J-4	Ml	T-1	T-2	M

NON-COMPLIANCE ITEMS:

MIL-A-83577 NOT APPLIED ON OLS CONTRACT

RATIONALE:

OLS HERITAGE - INTENT OF MIL-A-83577 BEING MET

IMPACTS/RISK:

LOW RISK

SMC ENGINEERING PRACTICES
USE OF TIN ON ELECTRICAL COMPONENTS
(OLD SMCR 800-27)

REQUIREMENTS:

USE NO SURFACE FINISH OF PURE TIN OR TIN ALLOY ON ELECTRICAL COMPONENTS OR HARDWARE

S/C	OLS	B/X	IES-2	J-4	MI	T-1	T-2	M

NON-COMPLIANCE ITEMS:

USED ON FASTENERS IN CRYPTO BOXES

RATIONALE:

IMPLEMENTED OPTION FOR EXISTING H/W BY CONFORMAL COATING OF ALL FASTENERS

GFE ITEMS

IMPACTS/RISK:

LOW RISK

SMC ENGINEERING PRACTICES
ANALYSES OF PRESSURE VESSELS
(OLD SMCR 800-29)

REQUIREMENTS:

PERFORM STRESS, FRACTURE MECHANICS, AND LIFE ANALYSES ON PRESSURE VESSELS & PRESSURIZED STRUCTURES

S/C	OLS	B/X	IES-2	J-4	Ml	T-1	T-2	M

NON-COMPLIANCE ITEMS:

MIL-STD-1522 ON CONTRACT WITHOUT REV A

REV A ADDED FRACTURE MECHANICS

RATIONALE:

HERITAGE

FULL QUAL PROGRAM COMPLETED

IMPACTS/RISK:

LOW RISK

SMC ENGINEERING PRACTICES
CONFORMAL COATING
(OLD SMCR 800-32)

—REQUIREMENTS:

—CONFORMALLY COAT ELECTRICAL COMPONENTS EXCEPT THOSE UNSUITABLE FOR COATING

S/C	OLS	B/X	IES-2	**J-4**	Ml	T-1	T-2	M

—NON-COMPLIANCE ITEMS:

—J-4 SENSOR ELECTRONICS NOT CONFORMALLY COATED

—RATIONALE:

—J-4 HERITAGE SENSOR

—SECONDARY IMPORTANCE

—IMPACTS/RISK:

—LOW RISK